Space Weather Forecast

Issued on Thursday, 08 September 2022 at 00:11 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight chance of Moderate-class flares (R1 Blackouts) throughout. Slight Chance of G1/Minor Geomagnetic Storm Day 1 (08 Sep).

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity was Low with several very minor Common-class flares observed. There are currently six sunspot regions on the visible disc, four of which are numbered. A region near the northeast limb has shown growth in the last 24 hours and is now the largest region on the disc, but is magnetically simple. Another region near south centre disc has also shown some minor development. The remaining regions are all currently small and simple.
There have been no Earth directed Coronal Mass Ejections (CMEs) seen in satellite imagery over the last 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind was indicative of a slowly waning coronal hole fast wind. Wind speeds were elevated varying between 510-600 km/s. Total interplanetary magnetic field strength was weak. The north-south component varied weakly. Geomagnetic activity was Quiet to Active (Kp 1-4).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is at background levels, with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is expected to be largely Low, with a slight chance of becoming Moderate with isolated Moderate-class flares, mainly from the region which has grown near the northeast limb.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs are currently expected. Solar winds continue to be elevated from the waning effects of a coronal hole. Wind speeds are expected to ease somewhat over the coming days, however a weaker fast wind from a faint coronal hole in the northwest may give a continuation of elevated, likely easing to slightly elevated, wind speeds through this period. Confidence in this is lower than average. Geomagnetic activity will likely be Quiet to Active, with a slight chance of G1/Minor Storm intervals on Day 1 (08 Sep). This should slowly ease through the period to become largely Quiet to Unsettled by Day 3 (10 Sep).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain below the Minor Radiation Storm level (S1).

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	15	15	15	15
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	2	2
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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